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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/607,915

06/27/2003

Yoshihiro Kobayashi

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LADAS & PARRY LLP  
224 SOUTH MICHIGAN AVENUE  
SUITE 1600  
CHICAGO, IL 60604

EXAMINER

LIN, JAMES

ART UNIT

PAPER NUMBER

1792

MAIL DATE

DELIVERY MODE

08/29/2008

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/607,915	<b>Applicant(s)</b> KOBAYASHI, YOSHIHIRO	
	<b>Examiner</b> Jimmy Lin	<b>Art Unit</b> 1792	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 14 July 2008.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 12 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 12 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sarnecki (U.S. Patent Application Publication No. 2003/0089252) in view of Snider (U.S. Publication No. 2001/0003222), Park et al. (U.S. Patent No. 5,053,298), and Roitman (U.S. Patent No. 5,972,419). Miyashita et al. (U.S. Publication No. 2001/0001050) is used as a teaching reference.

Sarnecki teaches forming an electroluminescent element by intaglio printing a light-emitting material [0008],[0010]. The film can be printed with a thickness in the range of 10 nm to 1  $\mu$ m (i.e., 100 Å to 10,000 Å, which fully encompasses the claimed range).

Sarnecki does not explicitly teach that the ink has a viscosity of 0.5-500 cP. However, Sarnecki does teach that the viscosity should be chosen to be a suitable viscosity for gravure printing [0020]. Accordingly, Snider teaches that viscosities of no more than 500 cP can be used in gravure printing (abstract) and that such a viscosity range is able to form a uniform film [0022]. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have chosen a viscosity of less than 500 cP as the particular viscosity of Sarnecki with a reasonable expectation of success. One would have been motivated to do so in order to have formed a uniform film. Sarnecki teaches the need to form a uniform film [0006].

Sarnecki teaches that multiple colors are applied and that each color is dried (i.e., hardened) before the next color is applied [0022], but does not teach that a later color is printed after a protective layer is placed over the already printed colors. However, Park teaches that in printing different colored pixels, each pixel should be covered to protect it during the deposition of the subsequent pixel (col. 3, line 29-col. 4, line 28). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have covered each pixel

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with a protective film before printing the subsequent pixel because Park teaches that such is a suitable method for protecting each already-deposited pixel during the deposition of subsequent pixels.

Sarnecki does not explicitly teach that the depth of the groove or a cell of the intaglio is in a range of 500 Å to 1 mm, but does teach that the depth of the cells is a result-effective variable because it controls the thickness of the film formed [0011]. It has been held that the discovery of the optimum value of a result effective variable in a known process is ordinarily within the skill in the art. *In re Boesch and Slaney*, 205 USPQ 215 (CCPA 1980). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have optimized the depth of the cells of Sarnecki through routine experimentation in order to have achieved the desired thicknesses in the range of 10 nm to 1 µm.

Sarnecki does not explicitly teach a contact angle of the light-emitting layer forming coating solution with a base material, on which the light-emitting layer is formed, is 20° or less. Sarnecki does teach that the light-emitting material droplets are printed into desired patterns. These patterns comprise of areas where light-emitting material is to be deposited and areas where light-emitting material is *not* deposited ([0040]; Fig. 1A). Accordingly, Roitman teaches that it was well known in the art to form hydrophilic and hydrophobic regions in order to confine light-emitting material droplets to form a desired pattern (col. 4, lines 56-59). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to have formed hydrophilic and hydrophobic regions on the substrate of Sarnecki with a reasonable expectation of success. One would have been motivated to do so in order to have further confined the droplets to a desired pattern. The light-emitting material droplets would easily wet the regions in which they are to be deposited, and would repel regions in which they are not to be deposited. The high wettability of the droplets to the deposited regions would necessarily create a low contact angle of the droplet relative to the base material because the degree of wettability is inversely proportional to the contact angle (see, e.g., Miyashita, [0095]). One of ordinary skill in the art would have recognized that any degree of wettability and/or contact angle would be operable so long as the deposited regions have greater attraction to the light-emitting material droplet than the regions not to be deposited onto. Thus, it would have been obvious to one of ordinary skill in the art at the time of invention to have used any degree of contact angle,

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including that of the claimed range, of the droplet with respect to the base material with a reasonable expectation of success.

***Response to Arguments***

3. Applicant's arguments, see pg. 3-5, filed 7/14/2008, with respect to the rejection(s) of claim(s) 12 and 17-18 under 35 U.S.C. 103(a) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Sarnecki, Snider, Park, and Roitman.

4. Applicant's arguments filed 10/23/2006 have been fully considered but they are not persuasive.

Applicant argues on pg. 4 that a less than 0.5 cP results in a layer that is not even, and a viscosity greater than 500 cP is hard to spread and does not provide for even wetting. However, Snider teaches that viscosities of less than 500 cP were well known to provide a uniform layer in gravure printing.

Applicant argues on pg. 4 that Towns does not disclose a coating solution have a viscosity of 0.5-500 cP for intaglio printing. However, Snider provides a teaching encompassing the claimed viscosity range for gravure printing, which is a type of intaglio printing. The teachings of Snider has been incorporated into the rejection.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jimmy Lin whose telephone number is (571)272-8902. The examiner can normally be reached on Monday thru Friday 8AM - 5:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tim Meeks can be reached on 571-272-1423. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Jimmy Lin/  
Examiner, Art Unit 1792

/Timothy H Meeks/  
Supervisory Patent Examiner, Art Unit  
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